

# FOLIO

THE UNIVERSITY OF ALBERTA STAFF BULLETIN

EDMONTON 7, ALBERTA



## Research money

An extensive survey of research funds which were given to University of Alberta staff members in 1969-70 has been completed by GORDON A. HOLMES, Research Grants Officer. The tables on the following pages present the main points of interest in the statistical survey. The figures indicate a rise in research income over the past years, with the 1969-70 total of \$7,599,525 exceeding the 1968-69 total of \$7,180,699 by almost 5.5 per cent.

The Research Grants and Contracts Office was established in the fall of 1969 within the Faculty of Graduate Studies. Information on research monies which are available from various sources, and assistance to staff members who wish to apply for grants are provided by the Office.

## Research of value to Alberta

*This paper was prepared by A. G. MC CALLA, Dean of Graduate Studies, at the request of M. WYMAN, President, and enumerates research projects at The University of Alberta and their value to the province. Short features on some of the specific research which has been summarized for this report will appear in future numbers of FOLIO.*

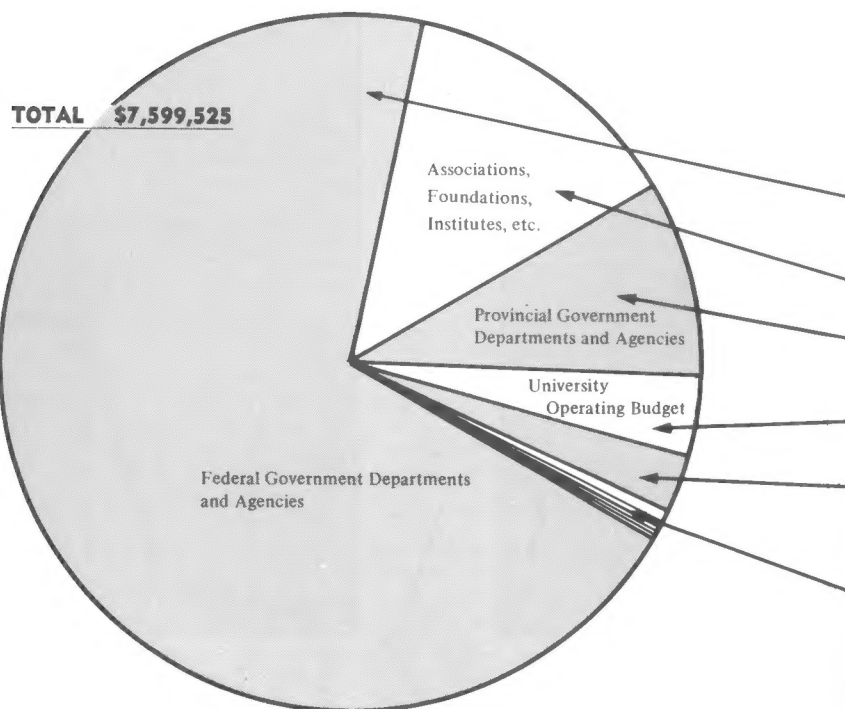
Requests for statements regarding the value of research to Alberta have brought many replies from deans, department chairmen, and individual staff members. Common to all these replies are several basic principles which are set out as follows:

(1) It is impossible to make a clear separation of the values directly attributable to research at the University as distinct from those at least partially attributable to advanced education as represented by graduate work. Our graduate

program could not have been developed without research, and our research programs could not have been carried out without graduate students.

(2) One of the most tangible values of research is the pool of highly educated and trained manpower resulting from our research projects that contribute so much to graduate education. For example, many senior executive positions in Alberta's petroleum industry are held by former graduate students from this University. These positions would be filled by foreign-trained engineers had we not developed our graduate and research programs.

(3) The quality of undergraduate education has been greatly improved because it has had the benefit of rapid utilization of ideas generated in graduate work and research. An active interest in research leads staff and graduate students to keep up with the latest developments in their fields. These people can then make their



**\$7,599,525 was provided for research at The University of Alberta in 1969-70 . . . here is where it came from**

	Amount	Per cent
1. Federal Government Departments and Agencies	\$ 5,336,644	70.22
2. Associations, Foundations, Institutes, etc.	\$ 1,044,146	13.74
3. Provincial Government Departments and Agencies	702,480	9.25
4. The University of Alberta Operating Budget	270,236	3.56
5. Business and Industry	180,978	2.38
6. Revenue, Surgical Medical Research Institute	20,059	.26
7. Municipalities, Schools and Counties	15,959	.21
8. Individuals	10,010	.13
9. United States Government	9,562	.13
10. Other	9,451	.12

## Research funds from two major sources . . . how we rank

### EXPENDITURES BY THE NATIONAL RESEARCH COUNCIL AND ATOMIC ENERGY CONTROL BOARD FOR OPERATING AND EQUIPMENT GRANTS IN 1969-70

(excluding computer facilities grants and negotiated major grants)

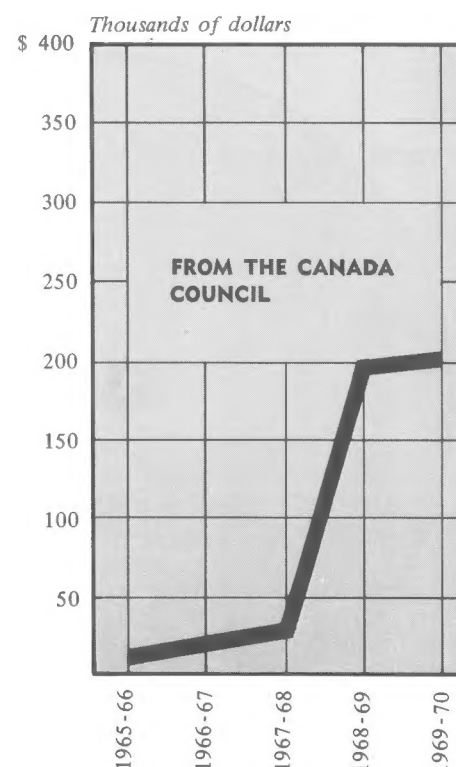
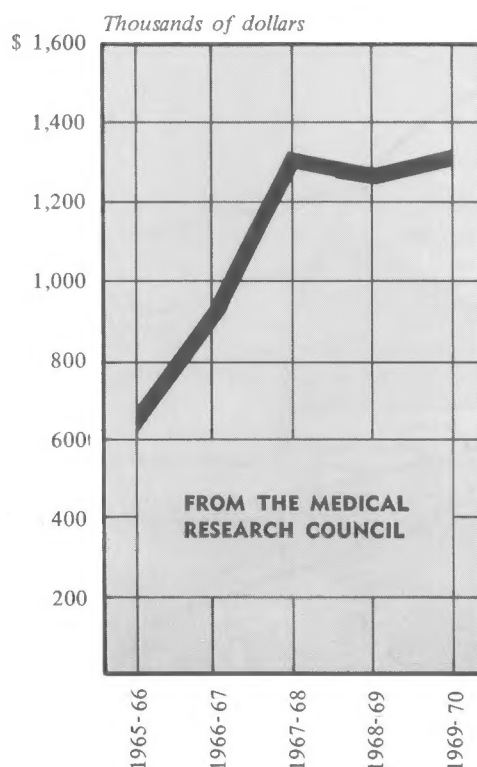
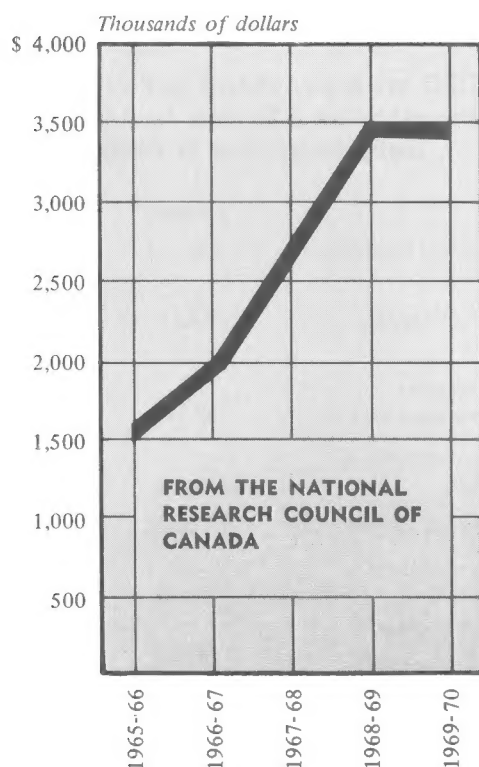
University	Rank last year	Total amount received
1. Toronto	1	\$4,777,900
2. British Columbia	2	4,085,300
3. <b>Alberta</b>	<b>4</b>	<b>2,918,900</b>
4. McGill	3	2,857,200
5. Waterloo	8	2,282,100
6. Manitoba	6	2,248,400
7. Saskatchewan	7	2,087,200
8. Laval	9	1,903,000
9. Queen's	10	1,614,000
10. Calgary	14	1,548,000
11. Western Ontario	11	1,516,300
12. Montreal	15	1,340,700
13. Guelph		1,226,700
14. Ottawa		843,800
15. Carleton		790,400
16. New Brunswick		780,300
17. Simon Fraser		768,400
18. York		750,600
19. Windsor		677,500
20. Memorial		618,600
21. Dalhousie		594,700
22. Sherbrooke		488,200
23. Macdonald College		432,400

### EXPENDITURES BY THE CANADA COUNCIL FOR KILLAM AWARDS AND RESEARCH GRANTS IN 1969-70

University	Rank last year	Total amount received
1. Toronto	1	\$ 780,000
2. Montreal	4	509,700
3. Laval	9	382,300
4. York	7	327,900
5. McGill	3	286,800
6. <b>Alberta</b>	<b>5</b>	<b>251,600</b>
7. British Columbia	6	193,500
8. Ottawa	14	190,800
9. Calgary	11	162,200
10. Manitoba	17	140,700
11. Memorial	10	140,600
12. Carleton	12	131,700
13. Queen's	2	120,100
14. Western Ontario	13	109,400
15. McMaster	16	100,800
16. Saskatchewan	20	90,600
17. Waterloo	8	78,800
18. New Brunswick	28	56,800
19. Victoria	18	54,200
20. Simon Fraser	19	51,500
Others*		190,800

\*Awarded less than 1 per cent of total expenditure

## The ebb and flow of research grants for



lectures and laboratories much more meaningful to their undergraduate students.

(4) The results of most research projects have much wider applicability than to the Province of Alberta but the province will profit from a large proportion of the research carried on.

(5) A large amount of money used in research projects comes from sources other than the province, especially from bodies such as the National Research Council, the Medical Research Council, and the Canada Council. Results obtained from many of the projects have great value to Alberta, but most of these projects are not narrowly conceived.

#### ALBERTAN NEEDS

There are research projects which are first and foremost designed to serve Alberta needs. Some of these concern our natural resources and their potential development. A few examples follow:

(1) Research by departments such as Geology, Geography, and Geophysics in the Faculty of Science is directly related to resource discovery and development in Alberta. Members of the staffs of these departments have been, and are, involved in projects of direct benefit to Alberta.

(2) The Department of Soil Science has

carried on research on Alberta soils, their most effective use and conservation, for nearly fifty years. The results of research projects have had great value in terms of use of gray wooded soils and podsol soils, use of fertilizers, etc. In co-operation with the Department of Plant Science, farmers have been helped in developing rotations for improved and permanent use of the soil resources.

(3) The Departments of Chemical and Petroleum Engineering and Mining and Metallurgy have contributed greatly to development and exploitation of provincial resources. The letter from R. M. HARDY, Dean of Engineering, is really a condensed synopsis of this work and can hardly be effectively condensed further. There can be no doubt about the value to Alberta despite the fact that none of these developments can be solely attributed to one research project or individual.

#### RENEWABLE RESOURCES

There are other projects which are directly concerned with Alberta renewable resources.

(1) Much of the research in the Faculty of Agriculture is of this type and the support such research receives from the Alberta Agricultural Research Trust is recognition of its potential value to Alberta. The projects include a very wide range: control of insects, weeds,

and diseases of crops; the development of new horticultural and field crop varieties; the elimination of harvest damage to crops; disposal of animal wastes; studies in animal physiology with special reference to extreme winter conditions; beef cattle breeding; nutritional studies, etc. The work of the Department of Animal Science on the nutritive value of rapeseed meal has led to extensive use of this material in livestock and poultry rations. Members of the department staff have given seminars in Japan, Taiwan, and in many countries in Europe. Rapeseed is now a major crop in Alberta.

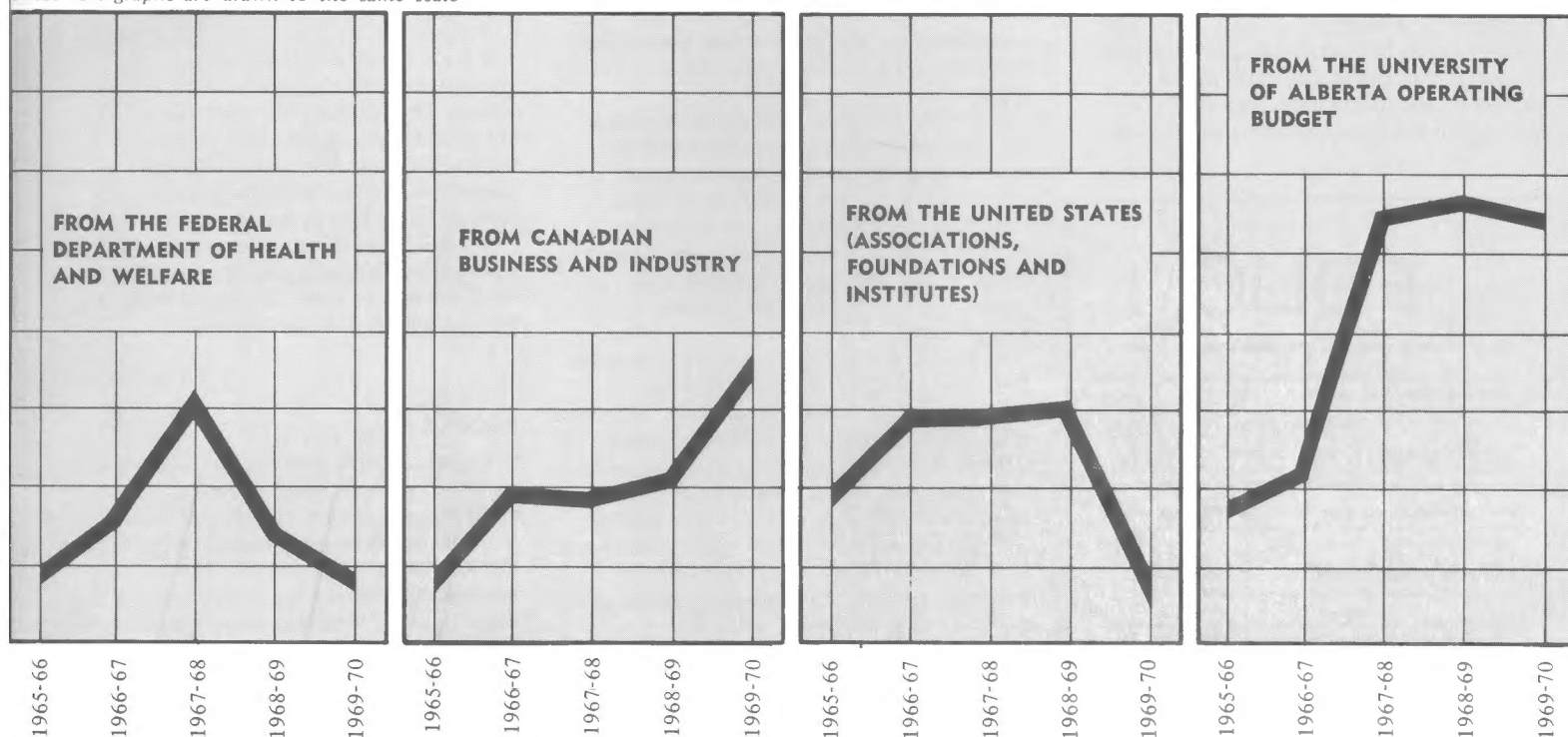
(2) Ecological studies in botany and zoology are of great importance to Alberta and promise to be even more important. Research in ecology in its broadest terms will involve departments in biology, engineering, and in the social sciences. Already Zoology staff members have carried out important studies on wildlife. This work has had a strong orientation towards the north. All of these studies recognize that wildlife constitutes one of the great national resources of the province.

#### EDUCATION

The Faculty of Education has established an excellent reputation for its graduate

## The University of Alberta, 1965-66 to 1969-70

These five graphs are drawn to the same scale



programs and research. Former graduate students are to be found on the staffs of universities all across Canada and in the service of many provincial and local Departments of Education. The record in Educational Administration has just been vividly reviewed by W. H. SWIFT, first Chairman of the Alberta Universities Commission. During the period 1958-70, seventy-three students in this department completed PhD programs and each program involved major research, many of the topics being pertinent to Alberta. During the period 1959-70, seventy-one students in the Department of Educational Psychology completed PhD programs and again many of the research projects were pertinent to this province.

Research carried out in the Departments of Elementary and Secondary Education usually involved classroom and student situations. This usually means that the Alberta situation is studied and the results, in the final analysis, will be beneficial to Alberta.

#### ENGINEERING

Research in the Faculty of Engineering covers many fields not referred to above. Much of this research is of direct value to Alberta. Only a few examples are given.

(1) Such research in the Department of Civil Engineering includes: work on design of dams and bridges; highway research; sanitary and environmental problems; hydraulics and river engineering; soil mechanics and foundation engineering, and structural engineering. This department has made research contributions of value to the province for nearly fifty years.

(2) Projects in Electrical Engineering were for many years oriented towards power generation and distribution. Now the department has expanded tremendously and

is in the forefront of research in electronics and its many related demands. Research such as this has enormous potential for developments in Alberta.

(3) Much of the research in the comparatively new Department of Mechanical Engineering is directly related to Alberta conditions. Examples are: heat transfer studies with direct applications to pipeline systems; measurements of solar energy in relation to air-conditioning; work on fatigue life, crack initiation, detection and propagation in steel with direct application in petroleum processing plants; pipeline design.

#### MEDICINE

The Faculty of Medicine considers its research program to be essential in the preparation of future medical teachers, scientists, and clinical specialists for Alberta and for Canada. W. C. MCKENZIE, Dean of the Faculty, states that we are still a "debtor" institution in regard to graduate training programs.

Fundamental or basic medical research in biochemistry, physiology, pharmacology, pathology and bacteriology provides the expanding knowledge and understanding of human biology and disease processes which are essential if new methods of prevention, diagnosis, treatment, and rehabilitation of human diseases are to be applied for the benefit of the people of this province. The direct benefit to health and welfare of the people of Alberta from such programs as those presently being conducted in the chemotherapy of malignant disease, in immunology, in nephrology and renal transplantation, in neuromuscular histological techniques, and in many other areas is readily apparent.

In the last few years basic research carried out in the fields of shock, open heart surgery, renal dialysis, kidney transplantation, and many other areas, has been the basis of the establishment of diagnostic and treatment programs now in active operation throughout this province. The benefits in health and longevity to the people of the province is unquestioned.

In the immediate future, research now under way in immunology, molecular biology, neurophysiology, mental retardation, and other areas will be similarly applied in the health services in the province. Research programs now under way in the Faculty of Medicine relating to the systems of health care delivery and the provision of health services may well have far reaching results in improving the efficiency and cost effectiveness of health care delivery in this province.

#### SOCIAL SCIENCES

Research in the social sciences and humanities is carried on by many

departments. The demands made on members of many of these departments such as Sociology, Economics, Political Science, etc., to carry out research of immediate interest to government departments and especially the Human Resources Research Council, indicates clearly that such research is considered to be of direct benefit to Alberta. It is impossible to summarize the scope of such research but it must be emphasized that it would be impossible to undertake most of it without the help of graduate students. An individual staff member does not, in general, do the detailed work involved in such research. Graduate students work under direction, develop their potential capabilities and, at the same time, produce useful results.

It has been stressed by the Dean of Arts, the Associate Dean, and some staff members that it is impossible to draw a line showing "valuable" results on one side and "of no practical value" on the other. In the long run, "research" in the fine arts may be just as "valuable" to Alberta as is research in petroleum engineering.

#### BUSINESS ADMINISTRATION

Research in Business Administration is a very recent development at this University. Nevertheless, many theses submitted since 1966 have dealt with Alberta problems, including aspects of the petroleum and gas industry; pulp and paper; tourist travel; local building industry; fertilizer industry; trade unions. Many other research projects and theses have value for the province although not based exclusively on Alberta.

It is not possible to review all the submissions from the smaller faculties and schools. Most of them can point to research of value, directly or indirectly, to Alberta. Most of these faculties and schools have started research and graduate work rather recently or are now in the planning process.

There is, however, complete agreement that research is an essential part of university work and that its value, in tangible and intangible ways, is beyond dispute.

#### PEOPLE

■ KAROL KROTKI, Professor of Sociology, spent two weeks in December in the Kingdom of Morocco advising the Central Bureau of Statistics on the development of their program. Dr. Krotki was accompanied by two colleagues, GEORGES SABAGH, Chairman of the Department of Sociology at the University of California at Los Angeles, and ROBERT MYERS, Visiting Professor of Biostatistics at the University of North Carolina.

■ M. L. HOWELL, Chairman of the

## FOLIO

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*HAROHIRO MATSUDO, Visiting Professor of Physical Education, the holder of an Olympic gold medal, swings high over the heads of visitors at the official opening of the Physical Education and Recreation Centre, East Wing, on Friday, February 26. The Frank Wolfe Memorial Plaque, a memorial to Mr. Wolfe, an Edmontonian whose family donated funds for equipment, was unveiled during the ceremonies. J. E. BRADLEY, Chairman of the Board of Governors; MAX WYMAN, President of the University; LOUIS DESROCHERS, Chancellor; His Honour J. W. GRANT MACEWAN, Lieutenant-Governor of Alberta, and ROBERT CLARK, Minister of Education, attended the opening.*

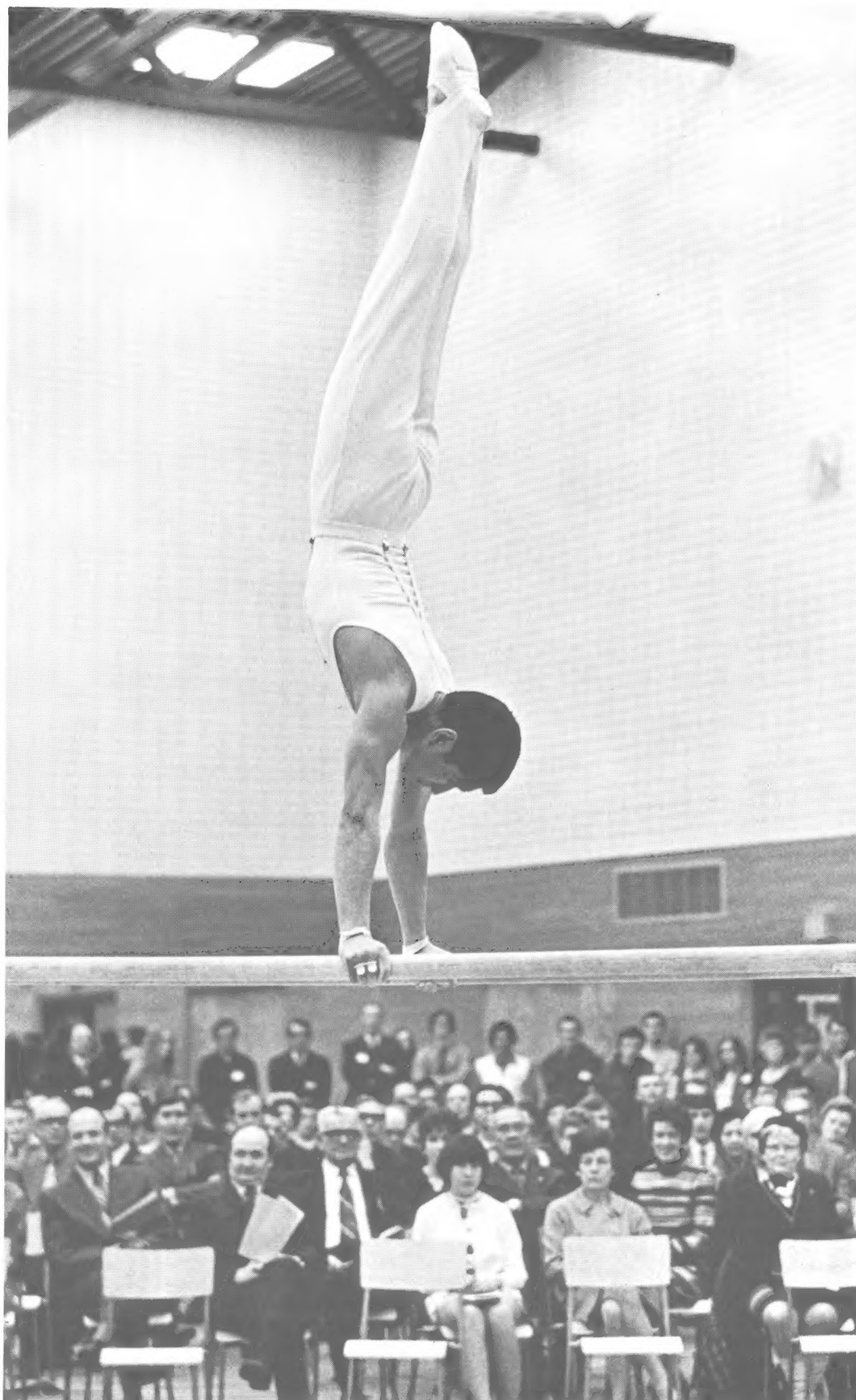
Department of Physical Education, gave a paper to the staff and students in physical education at the University of Western Ontario, and also gave the keynote address at the British Columbia Aquatics Conference.

■ JAN WEIJER, Professor of Genetics, will be visiting the Czechoslovak Academy of Sciences in Prague later this year, as an exchange scientist sponsored by the National Research Council.

## HOUSE SPEAKER APPOINTED CHANCELLOR

The University of Windsor has announced that THE HONOURABLE LUCIEN LAMOUREUX, Speaker of the House of Commons, has been appointed Chancellor of the university.

A native of Ottawa, the new Chancellor is a graduate of the University of Ottawa and Osgoode Hall Law School. Mr. Lamoureux was first elected to the House of Commons in 1962, was appointed Deputy Speaker in 1963, and was elected Speaker in 1966. He has retained a strong interest in higher education. G. M. MORTON, Chairman of the Board of Governors of the University of Windsor, stated: "Apart from the very considerable personal attainments he (Mr. Lamoureux) brings to the Chancellorship, as Canada's first permanent speaker, he symbolizes the best aspects of Canadian unity."



## PROMOTIONS

The following promotions from Associate Professor to Professor were approved at a meeting of the General Promotions Committee held on January 28, 1971.

### *Agricultural Engineering*

H. P. HARRISON

### *Anatomy*

F. B. COOKSON

### *Anthropology*

H. BARCLAY

### *Art*

W. JUNGKIND

E. N. YATES

### *Biochemistry*

W. PARANCHYCH

### *Business Administration*

S. M. HAMEED

C. A. LEE

R. SCHNECK

### *Chemistry*

D. DARWISH

O. P. STRAUSS

### *Civil Engineering*

P. F. ADAMS

N. RAJARATNAM

### *Classics*

G. HERMANSEN

### *Dentistry*

S. G. GELDART

D. R. STEWART

### *Drama*

F. BUECKERT

### *Economics*

B. KORDA

B. W. WILKINSON

### *Educational Foundations*

N. C. BHATTACHARYYA

### *Educational Psychology*

J. G. PATERSON

### *Elementary Education*

P. A. MC FETRIDGE

J. E. ROBERTSON

### *Electrical Engineering*

C. R. JAMES

### *Extension*

D. A. BANCROFT

### *Geography*

L. A. KOSINSKI

### *Germanic Languages*

A. P. SCOTT

### *History*

G. A. ROTHROCK

U. TRUMPENER

### *Mathematics*

K. L. MEHRA

### *Medicine*

R. E. ROSSALL

B. J. SPROULE

### *Music*

M. SASONKIN

### *Nursing*

S. M. STINSON

### *Pathology—Provincial Laboratory*

T. A. KASPER

### *Pharmacology*

J. S. CHARNOCK

### *Physical Education*

R. O. ANDERSON

R. B. MC NAB

### *Physics*

E. R. KANASEWICH

M. M. RAZAVY

### *Physiology*

R. B. STEIN

### *Romance Languages*

R. G. MOTUT

### *Soil Science*

J. A. ROBERTSON

### *Surgery*

W. H. LAKEY

### *Zoology*

J. C. HOLMES

V. LEVIN

## VISITORS

■ M. S. YUHASZ, President of the Canadian Association for Health, Physical Education and Recreation, visited the University while on an extension of a cross Canada investigation into the status of physical education.

■ T. G. EVANS of the Air Force Cambridge Research Laboratories at Bedford, Massachusetts, gave a colloquium to the Department of Computing Science.

■ KEITH GOLDHAMMER, Dean of the School

of Education at Oregon State University, Corvallis, visited the Department of Educational Administration and addressed three seminars.

■ The Department of Sociology was host recently to three visitors who were in Edmonton to attend a conference organized by the Human Resources Research Council. They were LEE BEAN, Assistant Director of the Demographic Division of the Population Council of New York; JAMES SHORT of Washington State University, and Research Co-director of the Presidential Commission on violence; and OTTO LARSEN, who is Research Director of the Presidential Commission on obscenity and pornography.

## BOOKS

*Europe: A Brief History* by GEORGE A. ROTHROCK, Associate Professor of History, has been released in direct paperback by Rand McNally and Company, Chicago.

## NOTICES

### ALCOHOLICS ANONYMOUS

An AA group has been formed on campus and will meet each Friday at 7:30 p.m. in Room 379, Central Academic Building. All those interested are welcome to attend. For further information, call 422-2764.

### ENVIRONMENTAL QUALITY

The Interdisciplinary Committee for Environmental Quality (ICEQ) is a group of professional people on campus who are "environmentally concerned." At the present time ICEQ tries to provide anti-pollution groups and concerned citizens with the basic knowledge they need to build a valid action program. Starting this month there will be bimonthly (second Tuesday and fourth Thursday) luncheon meetings at the Faculty Club. There will be a general meeting in mid-March. Anyone who is interested or just curious can call 432-4934 or 432-3576 for information.

### EXTENSION COURSES

A workshop designed for people who work with small groups will be held March 14 to 19 at the Banff School of Fine Arts. Its objective is making the participant aware of his effect upon the people he works with and providing him with the skills to diagnose group problems and communicate clearly. The course is \$50, and accommodation at the Banff School is \$10 per day extra. Additional information is available at the Department of Extension, 439-2021, extension 31.

A course in educational media methods will begin on April 8 and run for four

Thursday evenings. Participants will be involved in the planning, shooting, editing and evaluation of a short educational film, and will be required to spend an equal amount of their own time out of class for production purposes. A limited amount of equipment and materials will be provided. The fee is \$50. Call 439-2021, extension 47.

#### DUPLICATE BRIDGE

Duplicate bridge is played at the Faculty Club at 8 p.m. on the first and third Fridays of every month throughout the year. All bridge players are welcome, but it would be appreciated if they could bring a partner. Experience in duplicate play is not required. Further information may be obtained from K. B. NEWBOUND, 432-4758 or 433-3860.

### PERSONAL NOTICES

*Notices must reach the Editor by 9 a.m. the Friday prior to publication and should not exceed 35 words. They will appear for two consecutive weeks.*

#### Accommodation available

- FOR RENT—One-bedroom furnished suite (Sir John Franklin). May to September, 1971. Swimming pool, sauna, balcony. On campus. 433-5239.
- FOR RENT—Furnished split-level home in Westbrook Estates, June 1, 1971, to June 30, 1972. Four bedrooms, three washrooms, family room, fireplace, dinette, two-car garage, all appliances, many extras. \$400 monthly. 434-7933.
- FOR RENT—Lansdowne. Six-bedroom furnished house with den, double garage; \$350 per month; available June 1971 to July, 1972. 434-3843.
- FOR RENT—Southside, four bedroom fully furnished home. May 1, 1971, to May 1, 1972. Family room, fireplace, finished basement, attached garage, landscaped, fenced. Six appliances, dishes and linen on request. 434-6612 evenings.
- FOR RENT—Large split-level house (near Southgate Shopping Centre) study, family room (fireplace), fully furnished; dishwasher, washer, drier, fridge; garage, fenced landscaped garden. \$300 per month on 14 month lease available from mid-May. Phone local 3955 or 435-2896.
- FOR RENT—Four-bedroom two-storey house; fully furnished, all appliances, 2½ bathrooms, double garage. Available July, 1971 (or earlier) to August, 1972. Rent \$275-\$300. Magnificent view over river valley. 488-6239.
- FOR SALE—By owner. Three-bedroom home in Petrolia, L-shaped living-dining area, fireplace, four years old, 6¼ per cent mortgage. 435-6768.
- FOR RENT—Three bedroom fully furnished house, Windsor Park, May, 1971 to August 1972. Lease required. \$275 monthly. 433-4081.
- FOR RENT—Beautiful large, modern home on Westbrook Drive. Four bedrooms, den (family room, rumpus room and living room with fireplaces). By lease, July 1, 1971 to August, 1972. Rent by agreement. 434-2044.
- FOR RENT—Furnished or partly furnished house in Aspen Gardens. Three bedrooms, study or additional bedroom. 2½ baths. Family room with fireplace. Laundry room. Available from June 8 to September 1, 1971. Call Page Harrison, local 3231 or 435-7053.
- FOR RENT—Self-contained suite in private home (1,100 sq. ft.), lounge with fireplace, kitchen. Available long-term to male colleague. 434-6009 before 1:30 p.m., except Saturday.
- FOR RENT—Three-bedroom home, Malmo area, 1-½ baths, usual appliances and freezer, attached

garage, landscaped, May 1971 to August 1972. Lease required, rent negotiable, close to Southgate and University. 434-4025.

- FOR SALE—Two-bedroom bungalow, Parkallen. Finished basement room, heated garage, fenced lot. \$100 IPT, \$18,700. No agents please. 434-0957.
- FOR SALE—Three bedroom bungalow, Belgravia, fully furnished, from May 1, 1971 to September 1, 1971. Additional bedroom, rumpus room and ½ bath in basement. Two garages. Rent \$275 per month. 433-5902.
- FOR RENT—Furnished three-bedroom bungalow in Aspen Gardens. From June 1, 1971 to August 31, 1972. 1-½ baths, study. Bus service to University. Lease required. \$225 per month. 432-5418 or 434-3931 (home).
- FOR SALE—Five-bedroom home, Windsor Park, gable type cedar shake roof, oak flooring. One block from the University. 433-5595.
- FOR RENT—Three-bedroom home, fully or partly furnished, walking distance University and hospital, double garage. July, 1971 to July, 1972. Rent by agreement. 439-4018.
- FOR RENT—In Ottawa from July 1, 1971 to August 31, 1972, furnished 2 storey four-bedroom home, fireplace, patio, 1-½ baths, attached garage, close to schools, quiet residential area, \$375 monthly with lease. (See Accommodation Wanted Column.) 432-8048.
- FOR RENT—Three-bedroom bungalow, Aspen Gardens, unfurnished, from May 1, 1971, to September 1, 1972. 1½ baths, open fireplace, heated garage, dishwasher, washer, dryer. Easy bus service to University. Rent \$175 per month. Phone 453-1139 (home) or 432-3653 (office).

#### Accommodation wanted

- WANTED TO BUY—Three-or four-bedroom bungalow or split-level in southwest; fireplace preferable. 434-6565.
- WANTED TO RENT—As soon as possible. Three-or four-bedroom unfurnished older type house, between \$130 to \$140 per month. 488-8920.
- WANTED TO BUY—House, university area preferred. At least three bedrooms, with over 1,200 feet of floor space. Occupancy April-May. No agents. 439-8157 after 5 p.m.
- WANTED TO RENT—Home with four or five bedrooms, as soon as possible and for one or two years. Willing to pay up to \$350 per month for suitable accommodation. 423-2206, day, 434-8924, evenings.
- WANTED TO RENT—A visiting Professor at the University wants to rent a four-bedroom furnished house from September 1, 1971 through June, 1972. Please call 432-5683 or 435-1339.
- WANTED TO RENT—Party from Ottawa requires furnished three-bedroom house from September 1, 1971 to August 31, 1972 in Edmonton. Must be within walking distance of elementary school. Would like to arrange exchange. (See Accommodation Available Column.) 432-8048.

#### Automobiles and accessories

- MUST SELL—Leaving the country. 1969 Ford Escort, 10,000 miles, 37 miles to the gallon. Radial tires, oil heater, very good condition. \$1,000 or best offer. 465-1063.
- BEAST FOR SALE—Reliable Indian wants to sell weird horse, Mustang Mach 1, 351 4 Brl., orange red, with functional shaker, spoiler, AMFM Stereo, power steering, power disc brakes, Hurst 4SP, Tach, positraction, radial tires plus radial studded snows. Seven months old. \$3,450. Call Frank 432-4991.
- FOR SALE—1968 Dodge Monaco 500, convertible, bucket seats, power steering and brakes, 318 Engine. 432-3731—ask for Al.
- FOR SALE—Get 'em up Scout—I.H. Scout four wheel drive wagon. At home in the roughest bush or or the smoothest highway. Extras include V304, four speed, limited slip, 23,000 miles. 434-9066. evenings.

FOR SALE—1967 Vauxhall Viva, 24,000 miles, excellent shape; studded tires, four new summer tires,—asking \$900 but prepared to argue. Adam Hart-Davis 432-3504 days.

#### Goods and services

- FOR SALE—Beautiful Persian carpets, reasonable price, one large and one small. 910—9710 - 105 Street. 423-1026.
- FOR SALE—Household effects. Washer, dryer, T.V., Hi Fi, antiques, beds, tables, lamps. Staff member leaving country. 435-8956.
- FOR SALE—Collector's item: Map of City of Edmonton, 1912, (scale 500 ft. to 1 in.—size 7 ft. 9 in. by 6 ft. 6 in.). Perfect condition, linenbacked, original spring roller. Prepared by Driscoll and Knight. \$200. By appointment, evenings 439-4706.
- WANTED TO BUY—Stereo, reel to reel tape deck, Sony TC-255 preferred. 439-8157 after 5 p.m.
- WANTED—Shortwave radio, four or more bands. Phone Nick 432-4492 or 433-6790 (residence).
- FOR SALE—Sunbeam 16 in. electric snow-thrower with headlite and 100 ft. extension cord. Used twice. Moving. \$125. Phone Gary at 432-4901 (office) or 488-3252 (home).
- WILL TYPE papers, theses, etc.; manual typewriter; 40c per page. Phone Jeanette 434-8079.
- MUST SELL—Portable stereo record player, 8 months old, \$40. Wood kitchen table and four chairs, \$35. 439-3056 evenings.
- WANTED—To beg, borrow or buy English saddle for student rider. Call Bob at 432-8084.
- FOR SALE—Five drawer dresser, \$18; Viking portable TV with stand, good working condition, \$35; Singer sewing machine with cabinet, excellent condition, \$35. Evenings 433-2132.
- WANTED—Snowshoes. 4922 or 599-6225.
- FOR SALE—Adult male beagle, all shots, \$25. Also free tabby kitten for good home. 433-5635.
- DRESSMAKING AND ALTERATIONS—Experienced Seamstress. Phone 433-2351 between 4:30 and 9 p.m. Monday to Friday, or at any time on weekends.
- FOR SALE—For the “Professional” only. Breitling Navitimer Chronograph No. 1806 with built-in slide rule and calendar. 484-4805 after 5 p.m.
- FOR SALE—Siamese bluepoint kittens. Beautiful! Charming! Playful! Excellent dispositions guaranteed. Three males and one female. 435-1529 after 5 p.m. (Mrs. Larson).
- FOR SALE—One complete shower unit. Also one stainless steel washing machine style tub, suitable as suds-saver or outdoor gasoline cleaning. Drain tap at bottom. 454-7773 (Kay) or Ext. 4758.
- FOR SALE—Mason Risch piano, French provincial, fruitwood, five years old, \$650. Phone Diane after 5 p.m. 433-7045.
- FOR SALE—Strombecker Road Race set, over 40 feet track, four cars, eight engines, many accessories. 434-3065 evenings.
- WILL GIVE conversational lessons or revise texts in French, German and Italian. 432-4003 or 433-4323 after 5 p.m.
- FOR SALE—Harman Kardon 50 watt amplifier and Sansui stereo tuner. 434-1813 evenings
- TYPING OR TRANSLATION—Will type term papers, theses, etc., in French or Spanish. Translation from either language into English. 469-8150.
- WILL type thesis, dissertations or papers for publication, etc. Price negotiable. 432-6351 (office) or 424-3353 (home).
- FOR SALE—Large size, new, 400-page Atlas, \$30. Long sateen brocade wedding gown, size 12, train and veil. \$65. 434-0328.
- MOST URGENT—Could any person travelling to London within the next few weeks deliver a manuscript to King's College, W.C.2? Please contact R. Bryan, Department of Geography—4349.

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## THIS WEEK AND NEXT

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### 5 MARCH, FRIDAY

- Spring Break. Classes cancelled.
- String Quartet concert* 8:30 p.m. The University of Alberta String Quartet. All Bartok concert. Convocation Hall. Admission free.
- SUB Art Gallery* Opening, GEORGE SEGAL'S "The Execution," from the Vancouver Art Gallery.

### 6 MARCH, SATURDAY

- Judo tournament* 9 a.m. to 6 p.m. Golden Bear Invitational Judo tournament. West Gymnasium.

### 8 MARCH, MONDAY

- Computing Science colloquium* 4 p.m. C. MCMILLAN, JR., ACM Guest Lecturer from University of Colorado Departments of Management Science and Computer Science: " 'Decision Machines' and Executive Decision Making." Room 611 General Services Building.

### 10 MARCH, WEDNESDAY

- Noon hour concert* 12 noon. The University of Alberta String Quartet will give a free recital in SUB Art Gallery.
- Public lecture* 8:30 p.m. ANDRES BJORNSSON, Director-General of Icelandic State Radio and Television; "The Historical Novel in Modern Icelandic Literature." Room TL-12, Henry Marshall Tory Building.
- Edmonton Chamber Music Society* 8:30 p.m. Edmonton Chamber Music Players. DAYNA FISHER, oboe; LAWRENCE FISHER, violin; CLAUDE KENNESON, cello; BRIAN HARRIS, harpsichord. Convocation Hall.

### 11 MARCH, THURSDAY

- Book sale* 8:30 a.m. to 3:30 p.m. St. Joseph's College.
- Alberta Geography Society* 8 p.m. Panel discussion: "Park master plans: tools of preservation or destruction?" Lecture Hall of the Provincial Museum and Archives.
- Public lecture* 8:30 p.m. GERALD A. SANDERS, Professor of Linguistics, University of Minnesota: "Equational Constraints on Grammars." Sponsored by the Departments of Romance and Slavic Languages. Room TL-103, Henry Marshall Tory Building.

### 12 MARCH, FRIDAY

- Economics lecture* 10 a.m. M. BRON FENBRENNER, Carnegie-Mellon University: "The Marxian system as a macroeconomic model." Room 8-22, Henry Marshall Tory Building.
- Student Cinema* 7 p.m. *1000 Clowns* with JASON ROBARTS. SUB Theatre. 50 cents.
- Bar-None* 8 p.m. A rodeo, sponsored by the Rodeo Club and the Agriculture Club. Varsity Arena.

### 13 MARCH, SATURDAY

- Audubon Wildlife film* 8 p.m. KENT DURDEN'S *Death Valley—Land of Contrasts*, showing the surprising variety of plant and animal life to be found in this harsh environment. Room P.126 Physics Building.
- Edmonton Symphony* 8:30 p.m. and *March 14 at 3 p.m.* Violinist, FRANCO GULLI. "Son of Heldenleben," by Schaffer; Violin Concerto in D by Paganini; Symphony No. 8 by Shostakovitch. Jubilee Auditorium.
- Bar-None* 9 p.m. Western dance, sponsored by the Agriculture Club. Kinsman Fieldhouse.

### 14 MARCH, SUNDAY

- Student cinema* 7 and 9 p.m. *Downhill Racer* with ROBERT REDFORD. SUB Theatre. 50 cents.
- National Film Theatre* 7:30 p.m. Mack Sennett's *All Night Long*, (United States 1924); silent with English titles. Also, *An Italian Straw Hat* directed by Rene Clair, (France 1927). Synchronized music score. Edmonton Art Gallery.

### 15 MARCH, MONDAY

- Edmonton Film Society* 8:15 p.m. *Battle of Algiers*, (France 1966) directed by GILLE PONTECORVO. A reconstructed semi-fictional documentary of the Algerian struggle for independence. Main series. Jubilee Auditorium.

### 17 MARCH, WEDNESDAY

- Library Science colloquium* 10 a.m. WALTER JUNGKIND, Associate Professor of Art: "Library Displays—Evaluation." Room 224 Educational Library.
- Film* 2 p.m. and 7 p.m. *Also March 18 at 2 p.m. and 7 p.m. and March 19 at 2 p.m.* *L'Etranger* by ALBERT CAMUS with MARCELLO MASTROIANNI, in color, with English sub-titles. Sponsored by the Department of Romance Languages. Admission free. SUB Theatre.

### 19 MARCH, FRIDAY

- Poetry reading* 12 noon. Reading by students in creative writing classes. SUB Art Gallery.

### EXHIBITIONS AND PLAYS

- Exhibition of textile design* *Until March 6.* 9 a.m. to 5 p.m. daily. Knoll International fabrics. Third floor corridor, School of Household Economics.
- SUB Art Gallery* *Until March 25.* GEORGE SEGAL'S "The Execution."
- Edmonton Art Gallery* *Until March 28.* "Painterly Realism."
- Citadel Theatre* *until March 13.* *Othello*, with PAUL KLIGMAN and DIANA LEBLANC.

Listings must reach the Editor by 9 a.m. the Friday prior to publication. Written notification is preferred. Compiled by NORMA GUTTERIDGE, 432-4991.